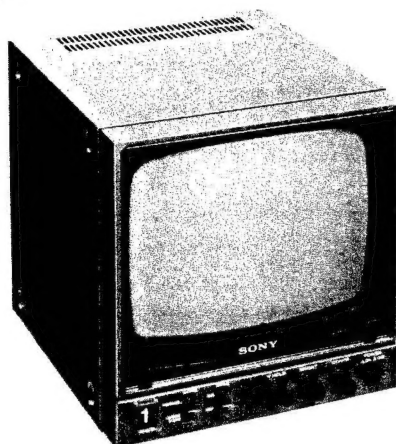


# PVM-91CE

## SERVICE MANUAL

*AEP Model*



October, 1982

### SPECIFICATIONS

System	CCIR standard
Picture tube	9 inches measured diagonally 90-degree deflection
Resolution	800 lines (horizontal)
Video input	Composite: 0.5 V – 2 V p-p, negative
Sync input	1 V – 8 V p-p, negative
Video/sync input impedance	High impedance for loop-through ; 75 ohms terminated
Power requirements	220 V ac, 50 Hz
Power consumption	38 W (max.), 29 W (average)
Dimensions	Approx. 216 × 228.5 × 246.5mm (w/h/d)
Weight	Approx. 6.1 kg


Design and specifications subject to change without notice.



VIDEO MONITOR  
**SONY**®

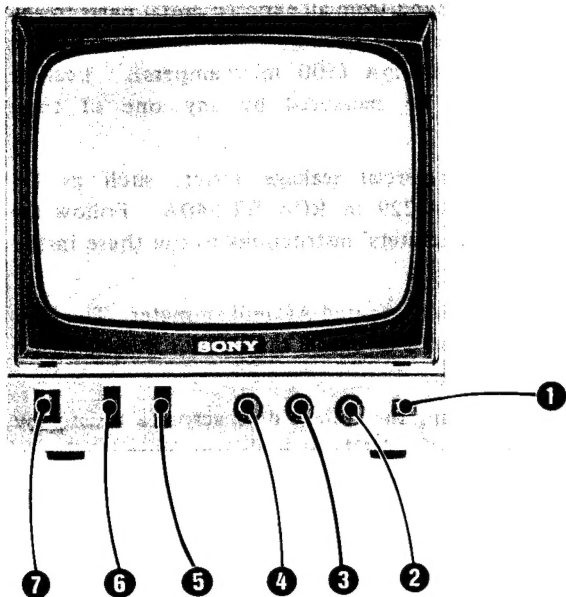
**MON**

**SAFETY-RELATED COMPONENT WARNING !!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

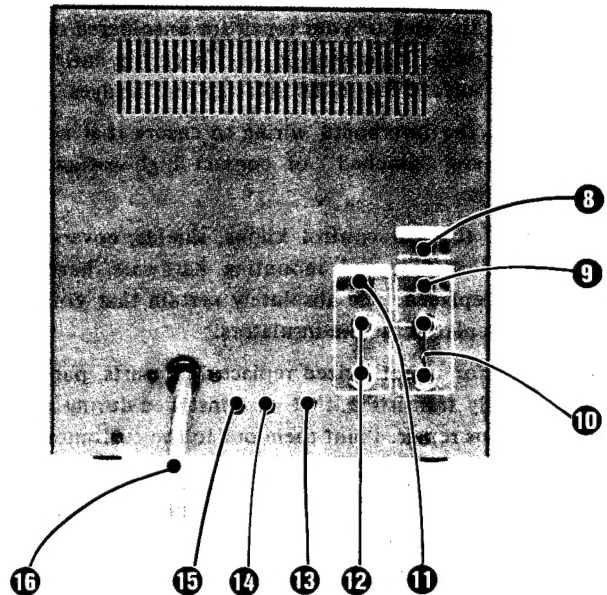
# 1. GENERAL

## LOCATION OF CONTROLS AND CONNECTORS



### Front panel

- 1 POWER switch**
- 2 CONTRAST control**
- 3 BRIGHT (brightness) control**
- 4 V HOLD (vertical hold) control**  
Adjusts the vertical stability of the picture.
- 5 SYNC select switch**  
**INT:** when composite video signal is supplied without external sync.  
**EXT:** when an external pulse is supplied from an external sync generator, with either a composite or non-composite video signal.
- 6 SCAN select switch**  
**NORMAL:** for normal scanning.  
**UNDER SCAN:** for underscanning to display the whole picture contained in the video signal. The display size is reduced by about 10%.
- 7 Number label window**  
When several monitors are used, classify each monitor by inserting one of the supplied labels (1 to 5).



### Rear panel

- 8 DC CLAMP switch**  
**ON:** The video signal is clamped with the pedestal voltage level, so that black level is fixed.  
**OFF:** Black level is not fixed.
- 9 SYNC 75-ohm termination switch**  
**ON:** When an equipment is not connected to the SYNC OUT connector.  
**OFF:** When an equipment is connected to the SYNC OUT connector.
- 10 SYNC IN/OUT connectors (BNC type)**
- 11 VIDEO 75-ohm termination switch**  
**ON:** When the monitor is used singly or is the last of looped chain.  
**OFF:** When another monitor is connected to the VIDEO OUT connector.
- 12 VIDEO IN/OUT connectors (BNC type)**
- 13 FOCUS control**  
Adjust the picture focus. Use a screwdriver to turn the control.
- 14 V LIN (vertical linearity) control**  
Adjust the vertical dimension of upper or lower part of the picture.
- 15 V SIZE (vertical size) control**  
Adjust the vertical dimension of the whole picture.
- 16 AC power cord**  
Connect to a 220 V ac outlet.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any). Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

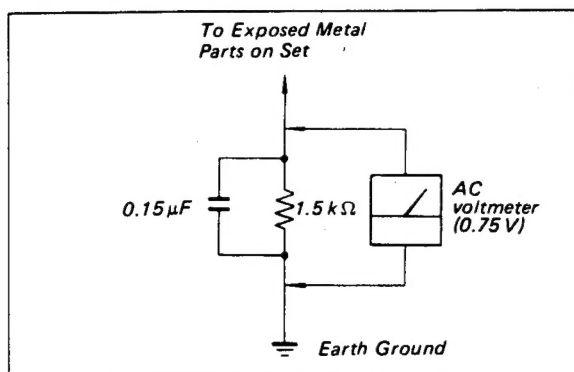


Fig. A. Using an AC voltmeter to check AC leakage.

## LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

## HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

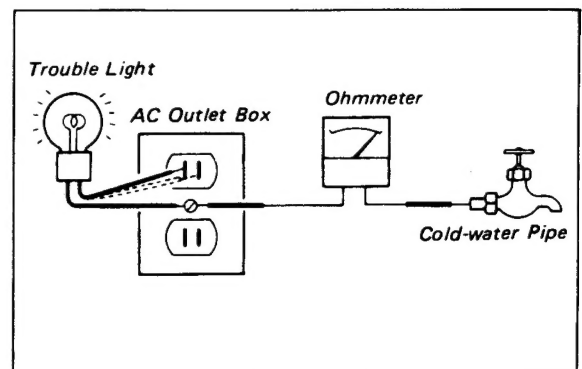
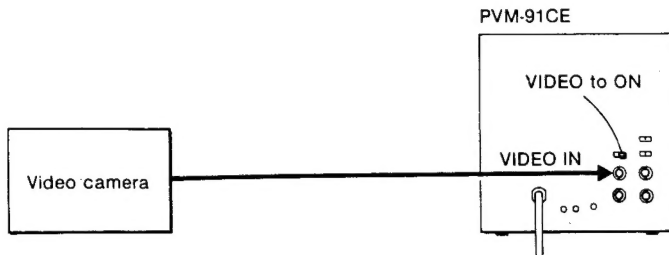


Fig. B. Checking for earth ground.



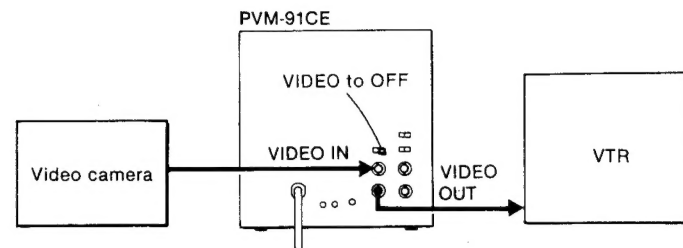
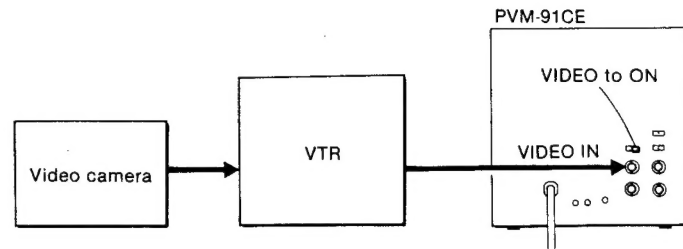
## CONNECTION EXAMPLE

### As a video camera monitor

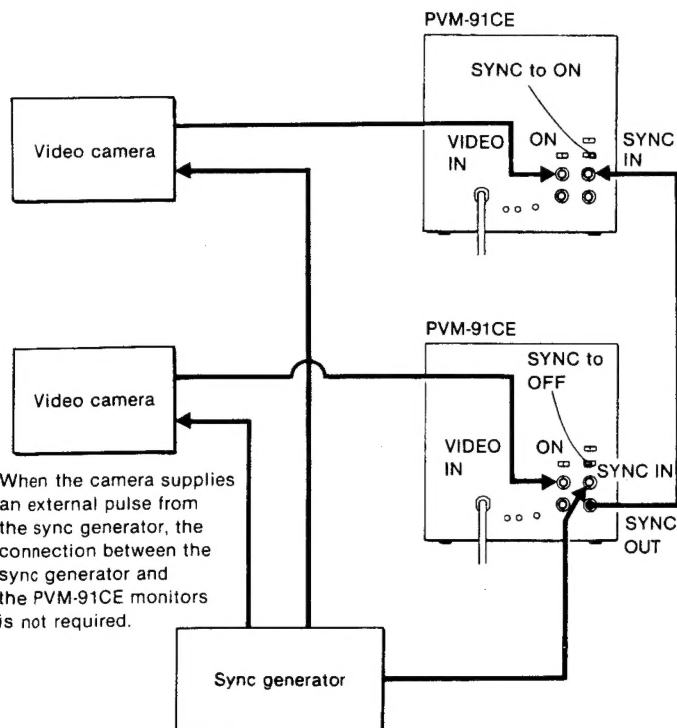


### Used with a video camera and a VTR

Either connection is possible.

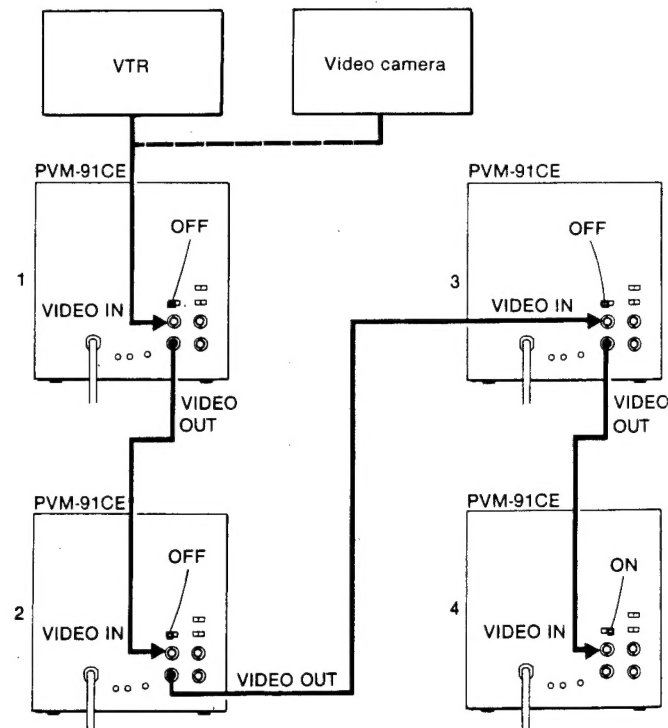


### Used with video cameras and a sync generator



### Multiple monitor connection

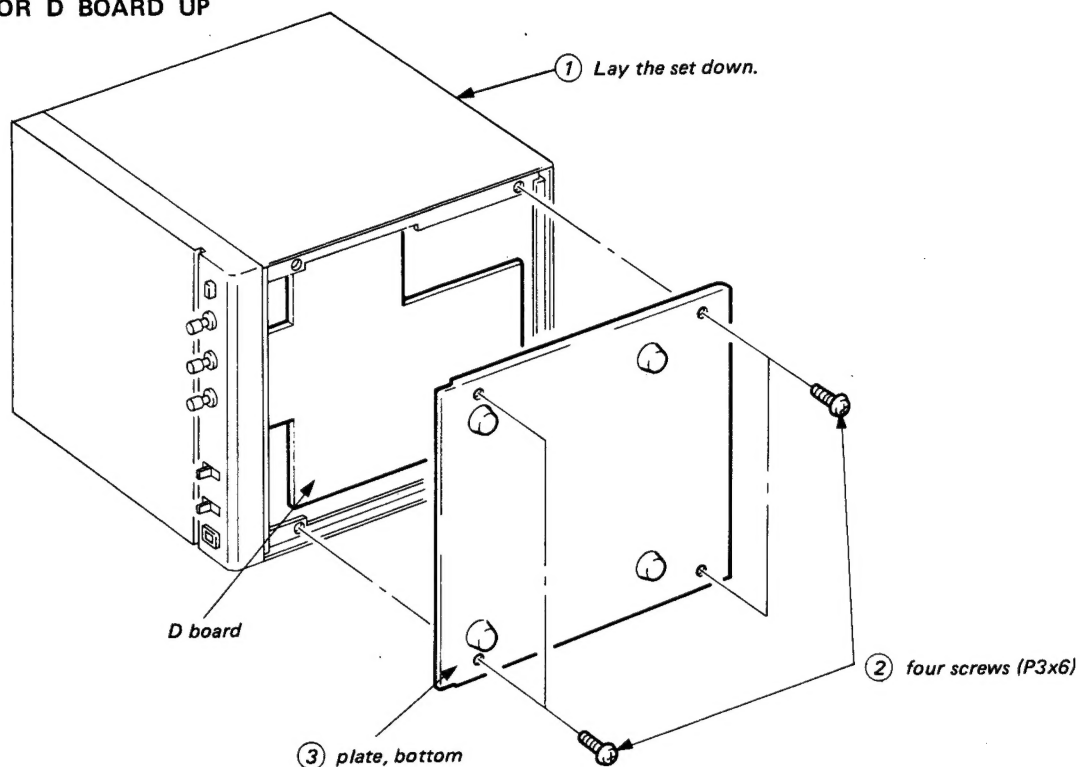
Up to 10 monitors may be connected.



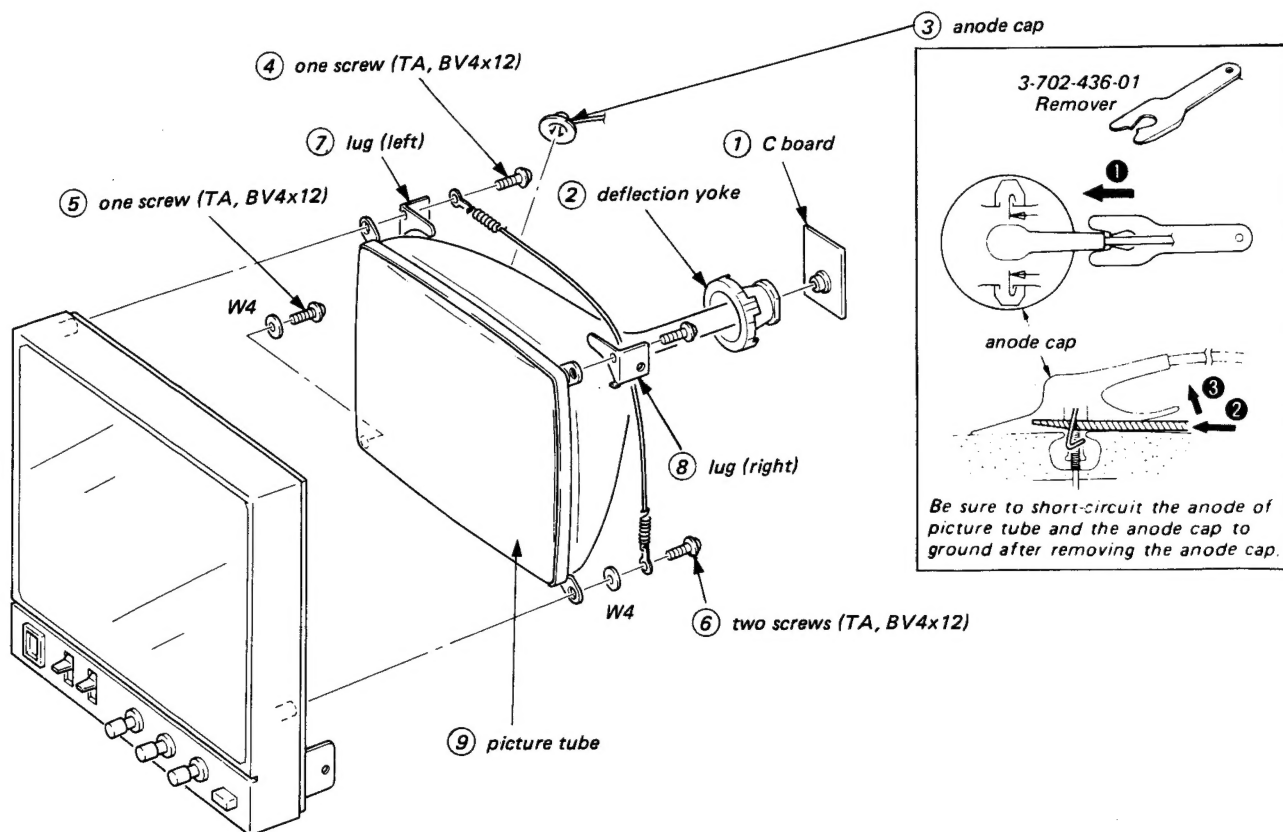
Set the VIDEO switch of the **last monitor** to ON and of the other monitors to OFF.

## 2. DISASSEMBLY

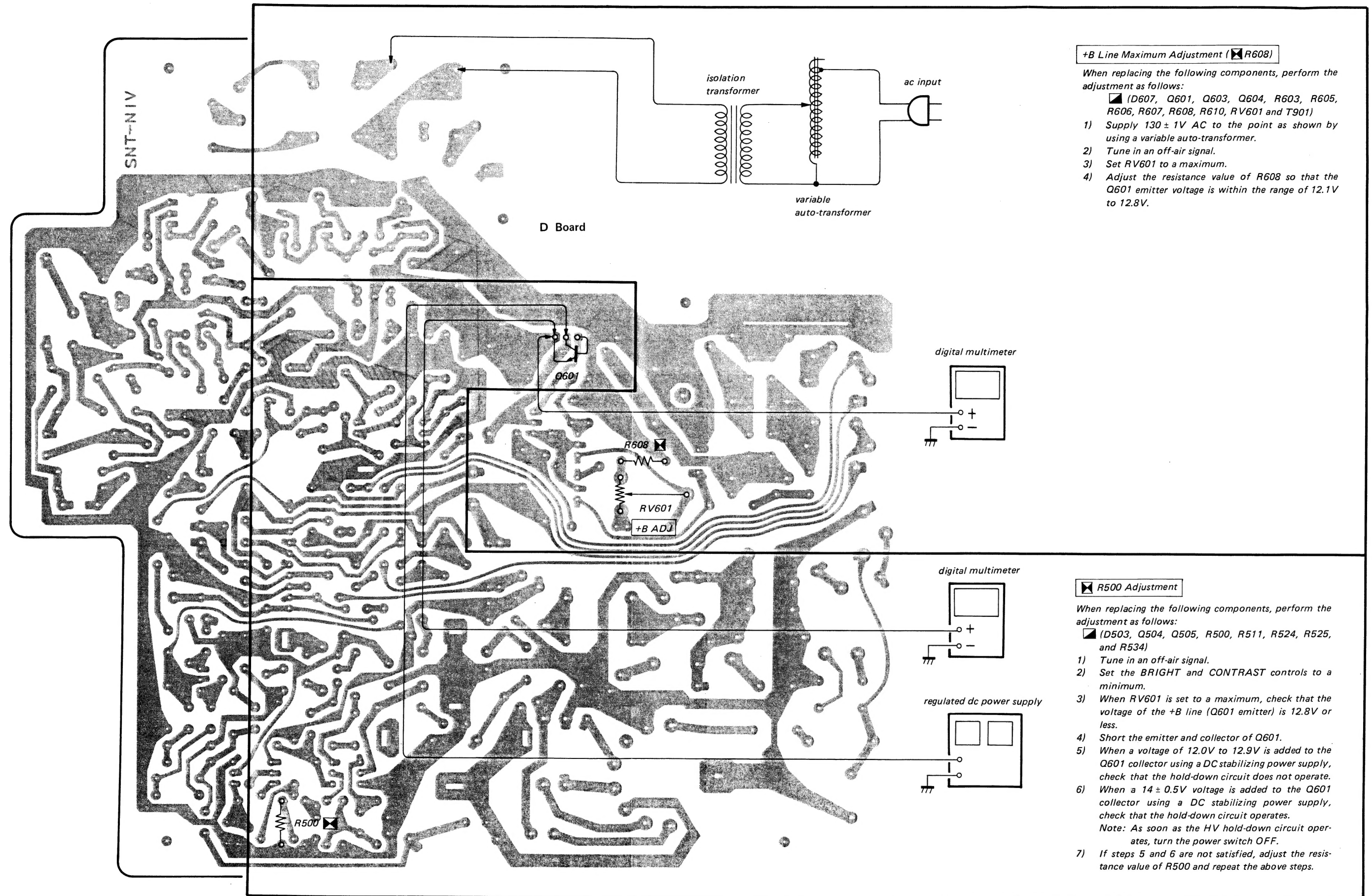
### 2-1. CHECKING FOR D BOARD UP



### 2-2. PICTURE TUBE REMOVAL

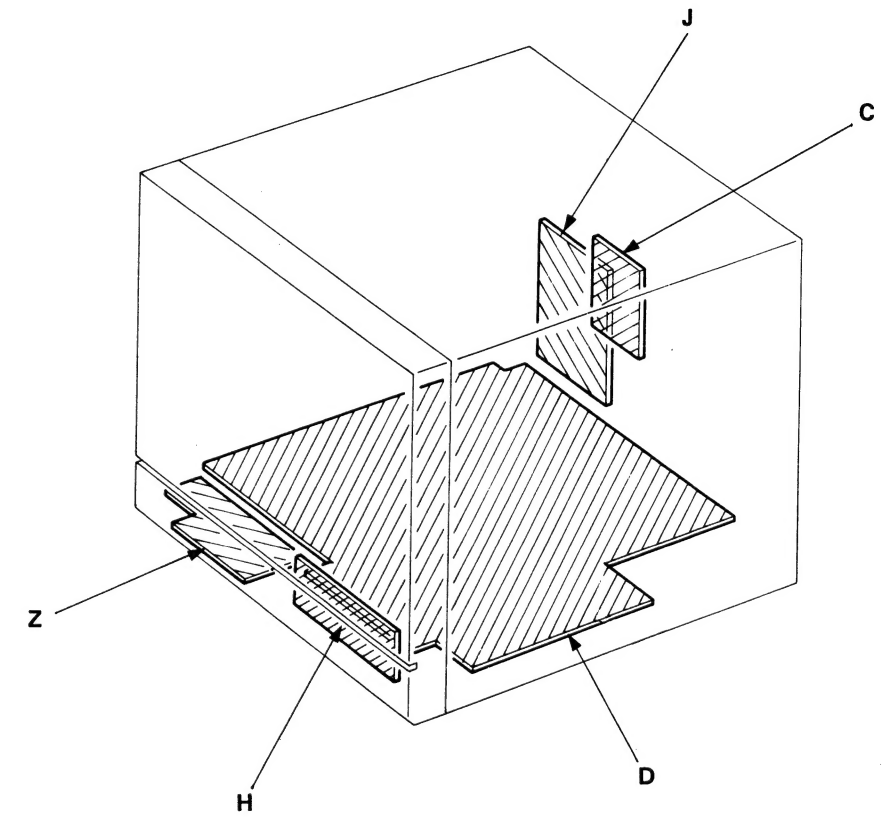


### 3. SAFTY RELATED ADJUSTMENTS

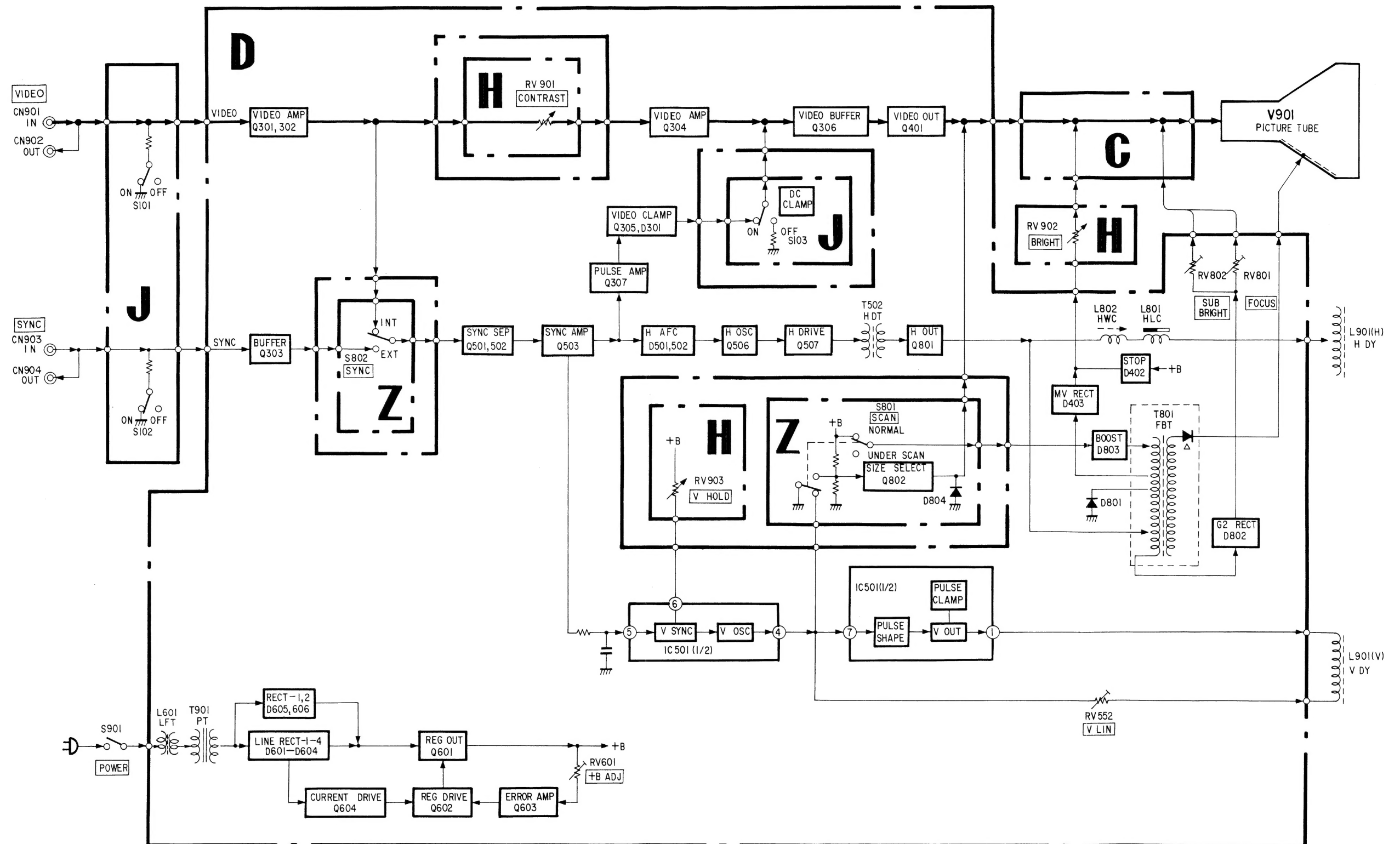


#### 4. DIAGRAMS AND CIRCUIT BOARD LOCATION

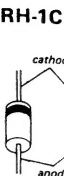
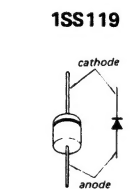
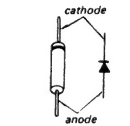
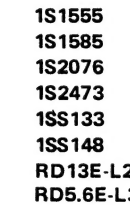
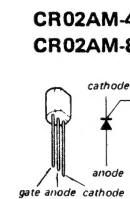
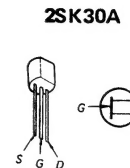
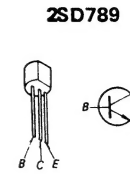
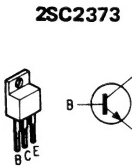
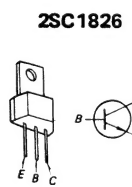
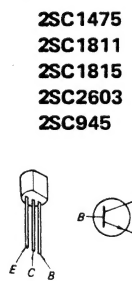
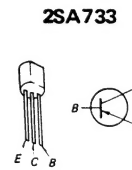
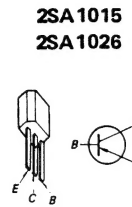
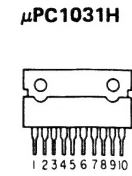
##### CIRCUIT BOARDS LOCATION




# BLOCK DIAGRAM










SEMICONDUCTORS






SCHEMATIC DIAGRAM

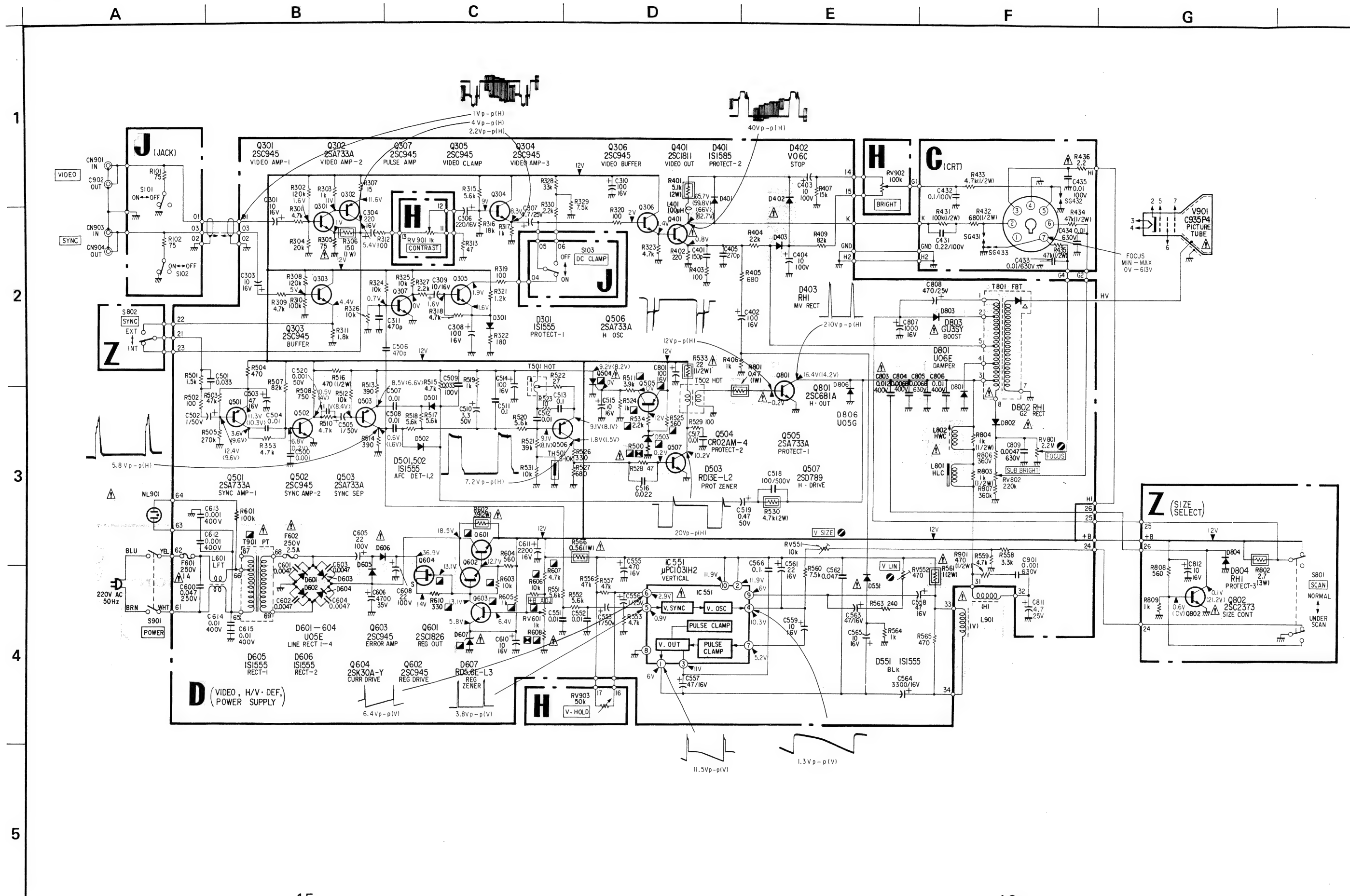
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics.
  - All resistors are in ohms,  $\frac{1}{4}\text{W}$  unless otherwise noted.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$
  - : nonflamable resistor.
  - $\Delta$ : internal component.
  - : panel designation.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
  - When replacing components identified by  mark the necessary adjustments indicated. If results do not meet the specified value, change the component identified by  and repeat the adjustment until the specified value is achieved.
- When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (  )	Adjustment (  )
D503, D607, Q504, Q505, Q601, Q603, Q604, R500, R511, R524, R525, R534, R603, R605, R606, R607, R608, R610, RV601, T901	R500 R608 adjustment

- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a  $10\text{M}\Omega$  digital multimeter.
- : adjustable without removing cabinet.
- : adjustment for repair.
- Voltage variations may be noted due to normal production tolerances.
- : B + bus.

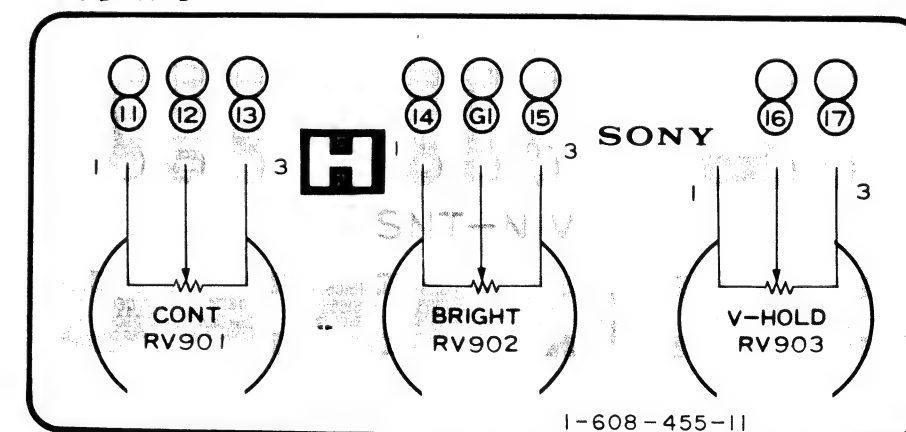
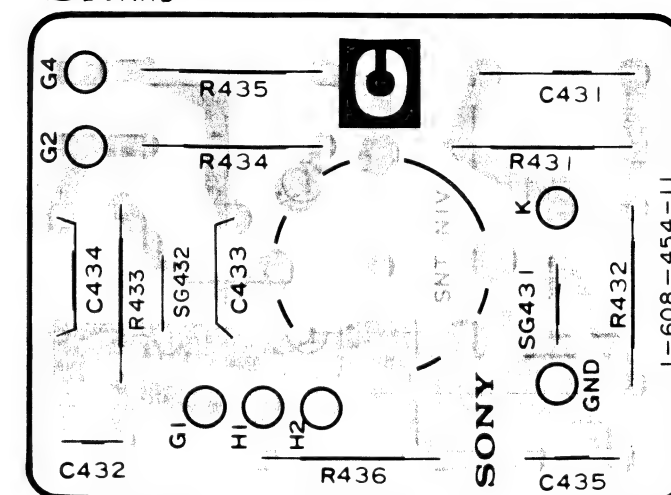
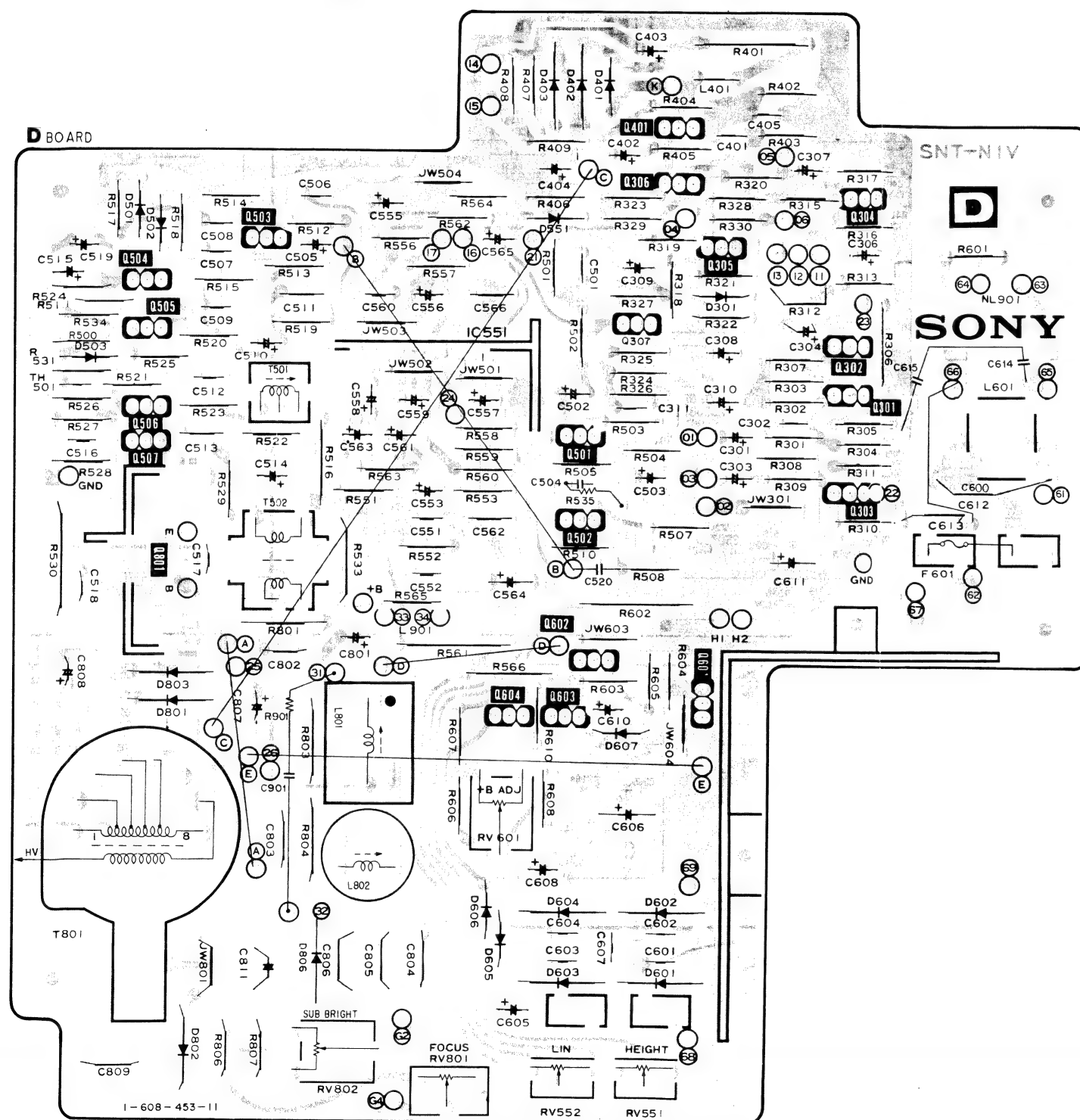
C D H J Z





**D C H**

Q IC	505 <sup>504</sup> <sub>507</sub> 506 801	503	IC 551	401	306 305	302 <sup>304</sup> <sub>303</sub>	Q IC
D	503	501,502 801 803 802	604	502 <sup>501</sup> <sub>603</sub> 602	307	601	D
ADJ			RV802	RV801	RV552	RV551	ADJ





**J** **Z**

A

B

C

1

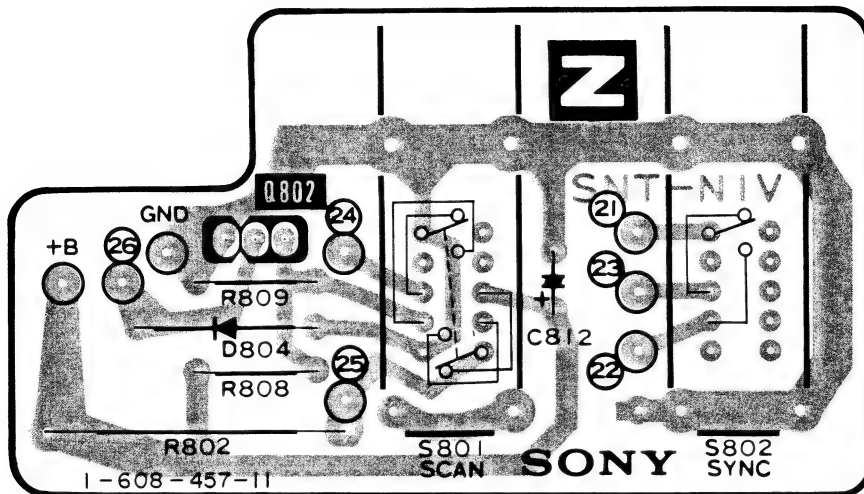
2

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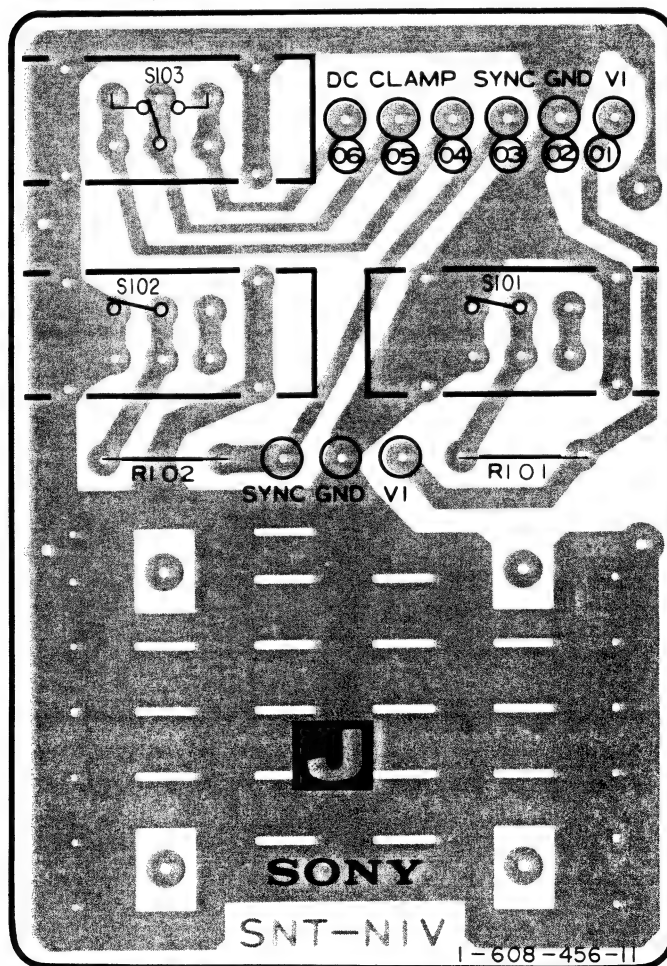
4

5

# **Z BOARD**



# **J BOARD**





## 5. EXPLODED VIEWS

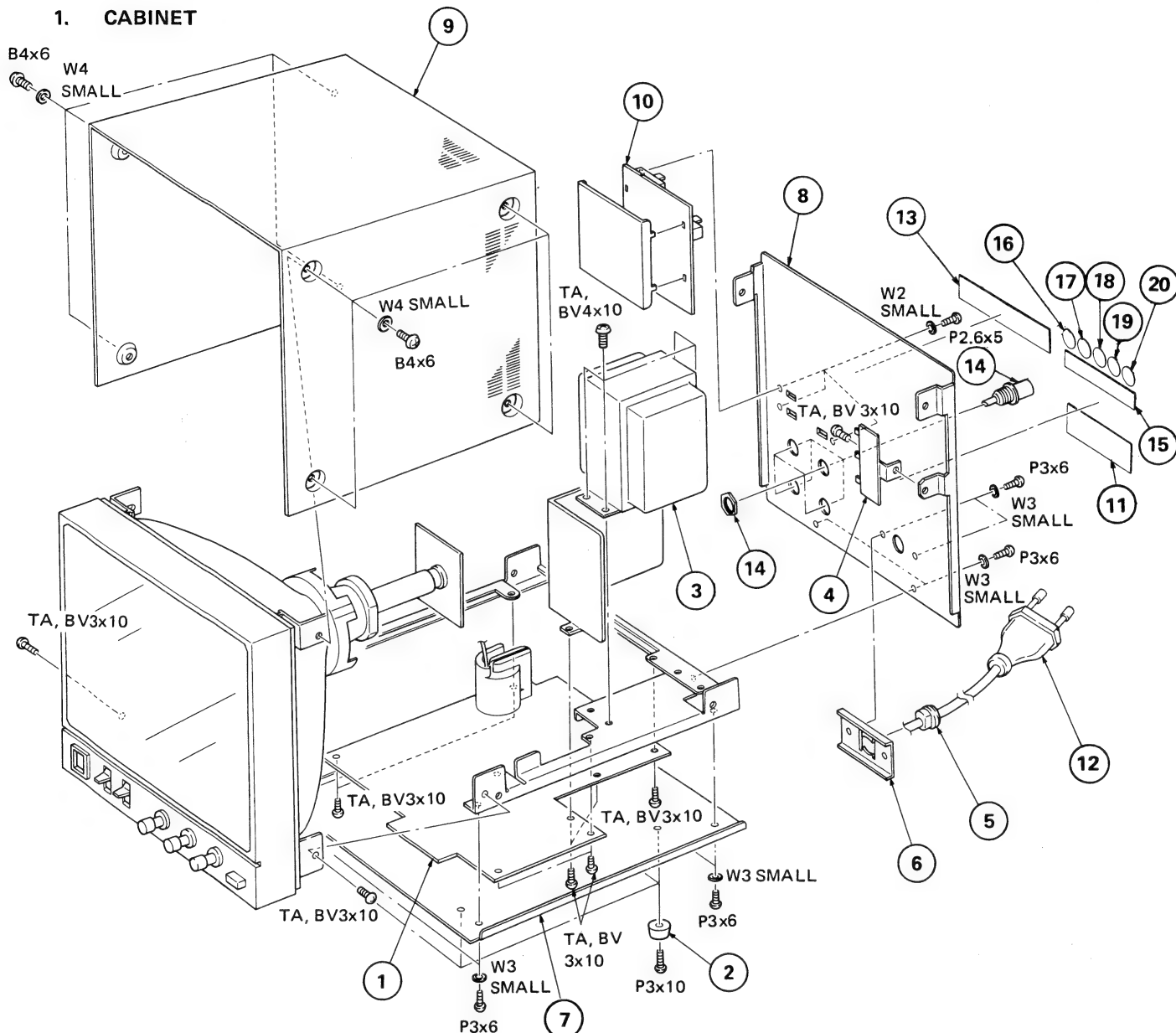
### NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

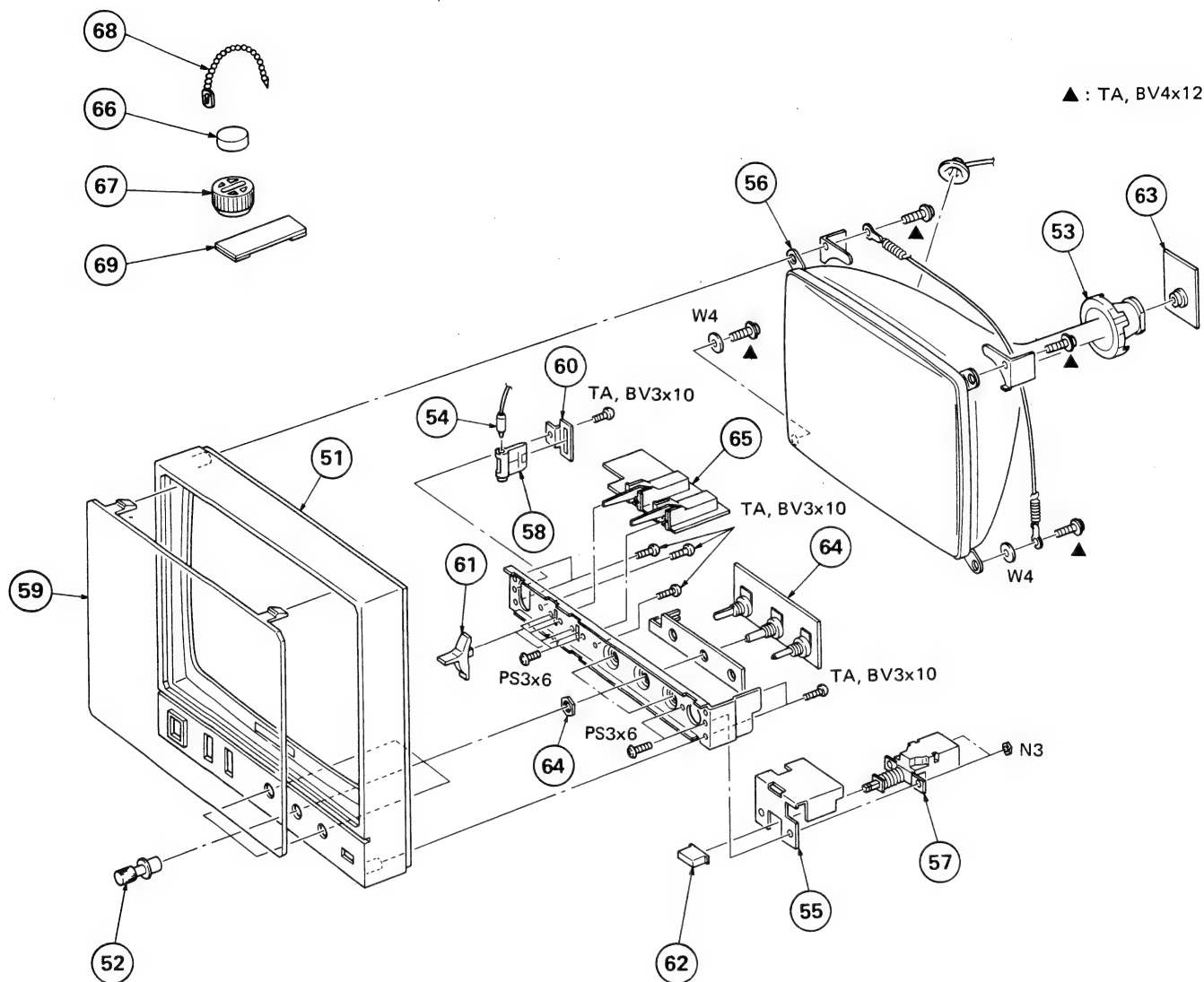
The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

### 1. CABINET



No.	Part No	Description	Remark	No.	Part No	Description	Remark
1	▲:A-1340-485-A	D MOUNTED		11	▲:4-027-219-00	LABEL, MODEL NUMBER (LARGE)	
2	X-4861-312-0	FOOT ASSY, MF		12	▲:1-534-820-XX	POWER CORD	
3	▲:1-447-427-00	TRANSFORMER, POWER: PT		13	▲:3-703-058-00	LABEL, PTB EXEMPTION	
4	1-536-392-XX	L-TYPE TERMINAL STRIP		14	1-561-167-00	CONNECTOR	
5	▲:3-005-073-00	BUSHING		15	3-703-057-00	LABEL, PTB EXEMPTION	
6	▲:4-025-821-00	HOLDER, BUSHING (CE)		16	3-703-269-00	LABEL, SEV	
7	▲:4-027-213-00	PLATE, BOTTOM		17	3-703-274-00	LABEL, APPROVAL	
8	4-027-214-00	PANEL, REAR		18	4-310-379-00	LABEL, NEMKO	
9	4-027-217-00	CABINET		19	4-310-380-00	LABEL, DEMKO	
10	▲:1-608-456-00	J BOARD		20	4-310-381-00	LABEL, SEMKO	

## 2. BEZEL



No.	Part No	Description
51	X-4027-202-0	BEZEL ASSY
52	X-4316-209-0	KNOB ASSY, CONTROL
53 ▲	1-451-216-21	DEFLECTION YOKE
54	1-519-108-XX	NEON LAMP ASSY
55 ▲	4-027-218-00	BARRIER
56 ▲	1-546-046-00	CATHODE-RAY TUBE (B/W)
57 ▲	1-553-330-00	SWITCH, PUSH (POWER)
58 ▲	4-027-202-00	HOLDER, LAMP
59	4-027-212-00	FILTER
60 ▲	4-308-211-00	HOLDER, NEON LAMP

No.	Part No	Description	Remark
61	4-335-954-02	KNOB (2P), LEVER SWITCH	
62	4-335-962-00	PUSH BUTTON	
63 ▲	1-608-454-00	C BOARD	
64 ▲	1-608-455-00	H BOARD	
65 ▲	1-608-457-00	Z BOARD	
66	1-452-032-00	MAGNET, DISK; 10MM ϕ	
67	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
68	4-308-870-00	CLIP, LEAD WIRE	
69	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

## NOTE:

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

## 6. ELECTRICAL PARTS LIST

- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## CAPACITORS

- MF :  $\mu$ F, PF :  $\mu$ F

## RESISTORS

- All resistors are in ohms
- F : nonflammable

## COILS

- MMH : mH, UH :  $\mu$ H


When indicating parts by reference number, please include the board name.

Ref.No	Part No	Description	Remark	Ref.No	Part No	Description	Remark
▲	1-608-454-00	C BOARD *****		C511	1-108-849-00	MYLAR 0.1MF	10% 50V
	1-526-521-XX	SOCKET, ELECTRONIC TUBE		C512	1-108-837-00	MYLAR 0.01MF	10% 50V
		CAPACITOR		C513	1-108-849-00	MYLAR 0.1MF	10% 50V
C431	1-108-393-00	MYLAR 0.22MF	10% 100V	C514	1-123-333-00	ELECT 100MF	20% 16V
C432	1-108-389-00	MYLAR 0.1MF	10% 100V	C515	1-123-356-00	ELECT 10MF	20% 16V
C433	1-129-714-00	FILM 0.01MF	10% 630V	C516	1-108-242-00	MYLAR 0.022MF	10% 50V
C434	1-129-714-00	FILM 0.01MF	10% 630V	C517	1-108-837-00	MYLAR 0.01MF	10% 50V
C435	1-108-377-00	MYLAR 0.01MF	10% 100V	C518	1-101-810-00	CERAMIC 100PF	5% 500V
		RESISTOR		C519	1-123-379-00	ELECT 0.47MF	20% 50V
R431	1-202-621-00	COMPOSITION 100K 5% 1/2W		C520	1-108-227-00	MYLAR 0.001MF	10% 50V
R432	1-202-569-00	COMPOSITION 680 5% 1/2W		C551	1-108-837-00	MYLAR 0.01MF	10% 50V
R433	1-202-589-00	COMPOSITION 4.7K 5% 1/2W		C552	1-108-837-00	MYLAR 0.01MF	10% 50V
R434	1-202-613-00	COMPOSITION 47K 5% 1/2W		C553	1-123-380-00	ELECT 1MF	20% 50V
R435	1-202-613-00	COMPOSITION 47K 5% 1/2W		C555	1-123-323-00	ELECT 470MF	20% 16V
R436	▲ 1-202-309-35	COMPOSITION 2.2 10% 1/4W		C556	1-131-498-51	TANTALUM 1MF	20% 25V
		SPARK GAP		C557	1-123-332-00	ELECT 47MF	20% 16V
SG431	1-519-063-XX	DISCHARGING GAP		C558	1-123-332-00	ELECT 47MF	20% 16V
SG432	1-519-063-XX	DISCHARGING GAP		C559	1-131-371-00	TANTALUM 10MF	20% 16V
SG433	1-519-063-XX	DISCHARGING GAP		C561	1-131-371-00	TANTALUM 10MF	20% 16V
*****				C562	1-108-845-00	MYLAR 0.047MF	10% 50V
▲	A-1340-485-A	D BOARD, COMPLETE *****		C563	1-123-332-00	ELECT 47MF	20% 16V
		CAPACITOR		C564	1-123-326-00	ELECT 3300MF	20% 16V
C301	1-123-356-00	ELECT 10MF	20% 16V	C565	1-123-325-00	ELECT 10MF	20% 16V
C303	1-123-356-00	ELECT 10MF	20% 16V	C566	1-108-849-00	MYLAR 0.1MF	10% 50V
C304	1-123-321-00	ELECT 220MF	20% 16V	C600	1-117-131-11	PAPER 0.047MF	20% 250V
C306	1-123-321-00	ELECT 220MF	20% 16V	C601	1-101-006-00	CERAMIC 0.047MF	50V
C307	1-123-328-00	ELECT 4.7MF	20% 25V	C602	1-101-006-00	CERAMIC 0.047MF	50V
C308	1-123-333-00	ELECT 100MF	20% 16V	C603	1-101-006-00	CERAMIC 0.047MF	50V
C309	1-123-356-00	ELECT 10MF	20% 16V	C604	1-101-006-00	CERAMIC 0.047MF	50V
C310	1-123-333-00	ELECT 100MF	20% 16V	C605	1-123-385-00	ELECT 22MF	20% 100V
C311	1-102-836-00	CERAMIC 470PF	10% 50V	C606	1-123-738-00	ELECT 4700MF	20% 35V
C401	1-102-108-00	CERAMIC 150PF	10% 50V	C608	1-123-385-00	ELECT 22MF	20% 100V
C402	1-123-333-00	ELECT 100MF	20% 16V	C610	1-123-356-00	ELECT 10MF	20% 16V
C403	1-123-384-00	ELECT 10MF	20% 100V	C611	1-123-325-00	ELECT 2200MF	20% 16V
C404	1-123-384-00	ELECT 10MF	20% 100V	C612	1-161-737-00	CERAMIC 0.001MF	20% 400V
C405	1-102-111-00	CERAMIC 270PF	10% 50V	C613	1-161-737-00	CERAMIC 0.001MF	20% 400V
C500	1-108-227-00	MYLAR 0.001MF	10% 50V	C614	1-161-737-00	CERAMIC 0.01MF	20% 400V
C501	1-108-244-00	MYLAR 0.033MF	10% 50V	C615	1-161-737-00	CERAMIC 0.01MF	20% 400V
C502	1-123-380-00	ELECT 1MF	20% 50V	C801	1-123-333-00	ELECT 100MF	20% 16V
C503	1-123-332-00	ELECT 47MF	20% 16V	C803	▲ 1-130-951-00	FILM 0.012MF	3% 400V
C504	1-108-837-00	MYLAR 0.01MF	10% 50V	C804	▲ 1-130-953-00	FILM 0.0068MF	3% 400V
C505	1-123-380-00	ELECT 1MF	20% 50V	C805	▲ 1-129-712-00	FILM 0.0068MF	10% 630V
C506	1-102-836-00	CERAMIC 470PF	10% 50V	C806	▲ 1-130-951-00	FILM 0.012MF	3% 400V
C507	1-108-837-00	MYLAR 0.01MF	10% 50V	C807	1-123-324-00	ELECT 1000MF	20% 16V
C508	1-108-837-00	MYLAR 0.01MF	10% 50V	C808	1-123-989-00	ELECT 470MF	20% 25V
C509	1-108-383-00	MYLAR 0.033MF	10% 100V	C809	1-129-710-00	FILM 0.0047MF	10% 630V
C510	1-123-382-00	ELECT 3.3MF	20% 50V	C811	1-123-908-00	ELECT 4.7MF	20% 25V
				C901	1-129-702-00	FILM 0.001MF	10% 630V
						DIODE	
				D301	=>8-719-911-19	DIODE 1SS119	
				D401	8-719-815-85	DIODE 1S1585	
				D402	▲ 8-719-900-63	DIODE V06C	
				D403	▲ 8-719-300-74	DIODE RH1	
				D501	=>8-719-911-19	DIODE 1SS119	

**D**

Ref.No	Part No	Description	Remark	Ref.No	Part No	Description	Remark
D502 =>	8-719-911-19	DIODE 1SS119		<b>RESISTOR</b>			
D503 =>	8-719-101-86	DIODE RD13E-L2		R301	1-246-489-00	CARBON 4.7K 5% 1/4W	
D551 △	8-719-815-55	DIODE 1S1555		R302	1-246-523-00	CARBON 120K 5% 1/4W	
D601 △	8-719-911-54	DIODE U05E		R303	1-246-473-00	CARBON 1K 5% 1/4W	
D602 △	8-719-911-54	DIODE U05E		R304	1-246-504-00	CARBON 20K 5% 1/4W	
D603 △	8-719-911-54	DIODE U05E		R305 △	1-246-446-00	CARBON 75 5% 1/4W	
D604 △	8-719-911-54	DIODE U05E		R306	1-213-133-00	METAL 150 5% 1W	F
D605 △	8-719-815-55	DIODE 1S1555		R307	1-246-429-00	CARBON 15 5% 1/4W	
D606 △	8-719-815-55	DIODE 1S1555		R308	1-246-523-00	CARBON 120K 5% 1/4W	
D607 △	8-719-101-59	DIODE RD5.6E-L3		R309	1-246-489-00	CARBON 4.7K 5% 1/4W	
D801 =>	8-719-911-55	DIODE U05G		R310	1-246-521-00	CARBON 100K 5% 1/4W	
D802 △	8-719-300-76	DIODE RH1		R311	1-246-479-00	CARBON 1.8K 5% 1/4W	
D803 △	8-719-300-00	DIODE GU3SY		R312	1-246-449-00	CARBON 100 5% 1/4W	
D806	8-719-911-55	DIODE U05G		R313	1-246-441-00	CARBON 47 5% 1/4W	
<b>FUSE</b>				R315	1-246-491-00	CARBON 5.6K 5% 1/4W	
F601 △	1-532-078-00	FUSE, TIME-LAG: 250V 1A		R316	1-246-503-00	CARBON 18K 5% 1/4W	
△	1-533-087-00	HOLDER, FUSE (F601)		R317	1-246-473-00	CARBON 1K 5% 1/4W	
F602 △	1-532-286-00	FUSE, TIME-LAG: 250V 2.5A		R318	1-246-489-00	CARBON 4.7K 5% 1/4W	
△	1-533-087-00	HOLDER, FUSE (F602)		R319	1-246-449-00	CARBON 100 5% 1/4W	
<b>IC</b>				R320	1-246-449-00	CARBON 100 5% 1/4W	
IC551 △	8-759-110-31	IC UPC1031H2		R321	1-246-475-00	CARBON 1.2K 5% 1/4W	
<b>COIL</b>				R322	1-246-455-00	CARBON 180 5% 1/4W	
L401 △	1-407-705-00	MICRO INDUCTOR 100UH		R323	1-246-489-00	CARBON 4.7K 5% 1/4W	
L601	1-441-855-00	TRANSFORMER, HEATER INSULATION: LFT		R324	1-246-497-00	CARBON 10K 5% 1/4W	
L801 △	1-459-427-00	COIL, HORIZONTAL LINEARITY, HLC		R325	1-246-497-00	CARBON 10K 5% 1/4W	
L802 △	1-459-330-12	RES, VAR (HWC)		R326	1-246-497-00	CARBON 10K 5% 1/4W	
<b>TRANSISTOR</b>				R327	1-246-481-00	CARBON 2.2K 5% 1/4W	
Q301 =>	8-729-606-32	TRANSISTOR 2SC2603		R328	1-246-509-00	CARBON 33K 5% 1/4W	
Q302 =>	8-729-201-52	TRANSISTOR 2SA1015		R329	1-246-494-00	CARBON 7.5K 5% 1/4W	
Q303 =>	8-729-606-32	TRANSISTOR 2SC2603		R330	1-246-481-00	CARBON 2.2K 5% 1/4W	
Q304 =>	8-729-606-32	TRANSISTOR 2SC2603		R401 △	1-206-681-00	METAL 5.1K 5% 2W	F
Q305 =>	8-729-606-32	TRANSISTOR 2SC2603		R402	1-246-457-00	CARBON 220 5% 1/4W	
Q306 =>	8-729-606-32	TRANSISTOR 2SC2603		R403	1-246-449-00	CARBON 100 5% 1/4W	
Q307 =>	8-729-606-32	TRANSISTOR 2SC2603		R404	1-246-505-00	CARBON 22K 5% 1/4W	
Q401 △	8-765-012-20	TRANSISTOR 2SC1811		R405	1-246-469-00	CARBON 680 5% 1/4W	
Q501 =>	8-729-201-52	TRANSISTOR 2SA1015		R406	1-246-473-00	CARBON 1K 5% 1/4W	
Q502 =>	8-729-606-32	TRANSISTOR 2SC2603		R407	1-246-501-00	CARBON 15K 5% 1/4W	
Q503 =>	8-729-201-52	TRANSISTOR 2SA1015		R409	1-246-519-00	CARBON 82K 5% 1/4W	
Q504 △	8-719-000-24	THYRISTOR CRO2AM-4		△ R500 △		CARBON	
Q505 =>	8-729-201-52	TRANSISTOR 2SA1015		R501	1-246-477-00	CARBON 1.5K 5% 1/4W	
Q506 =>	8-729-201-52	TRANSISTOR 2SA1015		R502	1-246-449-00	CARBON 100 5% 1/4W	
Q507 △	8-729-378-43	TRANSISTOR 2SD789		R503	1-246-513-00	CARBON 47K 5% 1/4W	
Q601 △	8-729-382-63	TRANSISTOR 2SC1826		R504	1-246-465-00	CARBON 470 5% 1/4W	
Q602 △	8-729-194-56	TRANSISTOR 2SC945		R505	1-246-531-00	CARBON 270K 5% 1/4W	
Q603 =>	8-729-606-32	TRANSISTOR 2SC2603		R506	1-246-483-00	CARBON 2.7K 5% 1/4W	
Q604 △	8-729-203-02	TRANSISTOR 2SK30A		R507	1-246-519-00	CARBON 82K 5% 1/4W	
Q801 △	1-806-308-00	TRANSISTOR 2SC681A		R508	1-246-470-00	CARBON 750 5% 1/4W	
				R509	1-246-499-00	CARBON 12K 5% 1/4W	
				R510	1-246-473-00	CARBON 1K 5% 1/4W	
				R511	1-246-487-00	CARBON 3.9K 5% 1/4W	
				R512	1-246-497-00	CARBON 10K 5% 1/4W	
				R513	1-246-463-00	CARBON 390 5% 1/4W	

When indicating parts by reference number, please include the board name.

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

Ref.No	Part No	Description	Remark			Ref.No	Part No	Description	Remark		
R514	1-246-463-00	CARBON	390	5%	1/4W	<u>TRANSFORMER</u>					
R515	1-246-489-00	CARBON	4.7K	5%	1/4W	T501	1-405-760-00	COIL, OSC: HOT			
R516	1-244-865-00	CARBON	470	5%	1/2W	T502	1-437-021-00	TRANSFORMER, HORIZONTAL DRIVE: HDT			
R517	1-246-491-00	CARBON	5.6K	5%	1/4W	T801	1-439-298-00	TRANSFORMER ASSY, FLYBACK: FBT			
R518	1-246-491-00	CARBON	5.6K	5%	1/4W	<u>THERMISTOR</u>					
R519	1-246-473-00	CARBON	1K	5%	1/4W	TH501	1-800-202-XX	THERMISTOR S-10K			
R520	1-246-491-00	CARBON	5.6K	5%	1/4W	*****					
R521	1-246-511-00	CARBON	39K	5%	1/4W	♣:1-608-455-00 H.BOARD					
R522	1-246-435-00	CARBON	27	5%	1/4W	*****					
R523	1-246-425-00	CARBON	10	5%	1/4W	<u>VARIABLE RESISTOR</u>					
R524	1-246-473-00	CARBON	1K	5%	1/4W	RV901	1-228-771-00	RES, VAR, CARBON 1K			
R525	1-246-467-00	CARBON	560	5%	1/4W	RV902	1-228-773-00	RES, VAR, CARBON 100K			
R526	1-246-461-00	CARBON	330	5%	1/4W	RV903	1-228-772-00	RES, VAR, CARBON 50K			
R527	1-246-469-00	CARBON	680	5%	1/4W	*****					
R528	1-246-441-00	CARBON	47	5%	1/4W	♣:1-608-456-00 J BOARD					
R529	1-246-449-00	CARBON	100	5%	1/4W	*****					
R530	1-206-680-00	METAL	4.7K	5%	2W	<u>RESISTOR</u>					
R531	1-246-497-00	CARBON	10K	5%	1/4W	R101	1-246-446-00	CARBON	75	5%	1/4W
R533	1-211-598-00	CARBON	22	5%	1/2W	R102	1-246-446-00	CARBON	75	5%	1/4W
R534	1-246-481-00	CARBON	2.2K	5%	1/4W	<u>SWITCH</u>					
R535	1-246-489-00	CARBON	4.7K	5%	1/4W	S101	1-516-576-00	SLIDE SWITCH			
R551	1-246-491-00	CARBON	5.6K	5%	1/4W	S102	1-516-576-00	SLIDE SWITCH			
R552	1-246-491-00	CARBON	5.6K	5%	1/4W	S103	1-516-576-00	SLIDE SWITCH			
R553	1-246-489-00	CARBON	4.7K	5%	1/4W	*****					
R556	1-246-513-00	CARBON	47K	5%	1/4W	♣:1-608-457-00 Z BOARD					
R557	1-246-513-00	CARBON	47K	5%	1/4W	*****					
R558	1-246-485-00	CARBON	3.3K	5%	1/4W	<u>CAPACITOR</u>					
R559	1-246-489-00	CARBON	4.7K	5%	1/4W	C812	1-123-356-00	ELECT	10MF	20%	16V
R560	1-246-494-00	CARBON	7.5K	5%	1/4W	<u>DIODE</u>					
R561	1-206-439-00	METAL	1	5%	2W	D804	1-8-719-300-74	DIODE RH1			
R563	1-246-458-00	CARBON	240	5%	1/4W	<u>TRANSISTOR</u>					
R564	1-246-473-00	CARBON	1K	5%	1/4W	Q802	1-8-729-137-32	TRANSISTOR 2SC2373			
R565	1-246-465-00	CARBON	470	5%	1/4W	<u>RESISTOR</u>					
R566	1-212-357-61	METAL	0.56	5%	1W	R802	1-206-497-61	METAL	2.7	5%	3W
R601	1-246-521-00	CARBON	100K	5%	1/4W	R808	1-246-467-00	CARBON	560	5%	1/4W
R602	1-206-477-00	METAL	39	5%	2W	R809	1-246-473-00	CARBON	1K	5%	1/4W
R603	1-246-497-00	CARBON	10K	5%	1/4W	<u>SWITCH</u>					
R604	1-246-467-00	CARBON	560	5%	1/4W	S801	1-552-897-00	SWITCH, LEVER			
R605	1-246-473-00	CARBON	1K	5%	1/4W						
R606	1-246-497-00	CARBON	10K	5%	1/4W						
R607	1-246-489-00	CARBON	4.7K	5%	1/4W						
R608		CARBON			1/4W						
R610	1-246-461-00	CARBON	330	5%	1/4W						
R801	1-212-356-00	METAL	0.47	5%	1W						
R803	1-244-873-00	CARBON	1K	5%	1/2W						
R804	1-244-873-00	CARBON	1K	5%	1/2W						
R806	1-246-534-00	CARBON	360K	5%	1/4W						
R807	1-246-534-00	CARBON	360K	5%	1/4W						
R901	1-202-565-00	COMPOSITION	470	5%	1/4W						
<u>VARIABLE RESISTOR</u>											
RV551	1-226-100-00	RES, ADJ, CARBON 10K									
RV552	1-224-965-00	RES, ADJ, CARBON 470									
RV601	1-226-819-00	RES, ADJ, CARBON 1K									
RV801	1-226-263-00	RES, ADJ, CARBON 2.2M									
RV802	1-224-551-00	RES, ADJ, CARBON 220K									

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When indicating parts by reference number, please include the board name.

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

**Z**

Ref.No	Part No	Description	Remark
S802	1-552-897-00	SWITCH, LEVER	

\*\*\*\*\*

MISCELLANEOUS  
\*\*\*\*\*

△.1-534-820-XX POWER CORD  
1-536-392-XX L-TYPE TERMINAL STRIP  
1-561-167-00 CONNECTOR  
1-452-032-00 MAGNET, DISK; 10MM ϕ  
1-452-094-00 MAGNET, ROTABLE DISK; 15MM ϕ

L901 △.1-451-216-21 DEFLECTION YOKE H,V  
NL901 △.1-519-108-XX NEON LAMP ASSY  
S901 △.1-553-330-00 SWITCH, PUSH (POWER)  
T901 △.1-447-427-00 TRANSFORMER, POWER: PT  
V901 △.1-546-046-00 CATHODE-RAY TUBE (B/W)

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ACCESSORIES AND PACKING MATERIALS  
\*\*\*\*\*

4-493-695-11 MANUAL, INSTRUCTION  
3-701-629-00 BAG, POLYETHYLENE  
4-027-221-00 CUSHION  
4-027-222-00 INDIVIDUAL CARTON  
4-309-407-00 BAG, POLYETHYLENE

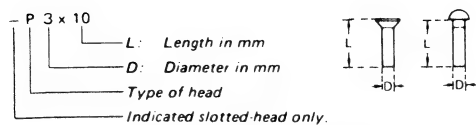
When indicating parts by reference number, please include the board name.

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.



## HARDWARE NOMENCLATURE

Screw:



Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
<b>SCREWS</b>			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2 6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	

EXPLODED VIEW  
PVM-91CE

SP0572  
**SONY®**  
**SERVICE MANUAL**

*AEP Model*  
*Serial No: 25201 and later*

## **SUPPLEMENT-1**

File this supplement with the service manual.

### **INTRODUCTION**

1. The CRT and TRANSFORMER POWER will be changed to new parts.



## 5. EXPLODED VIEWS

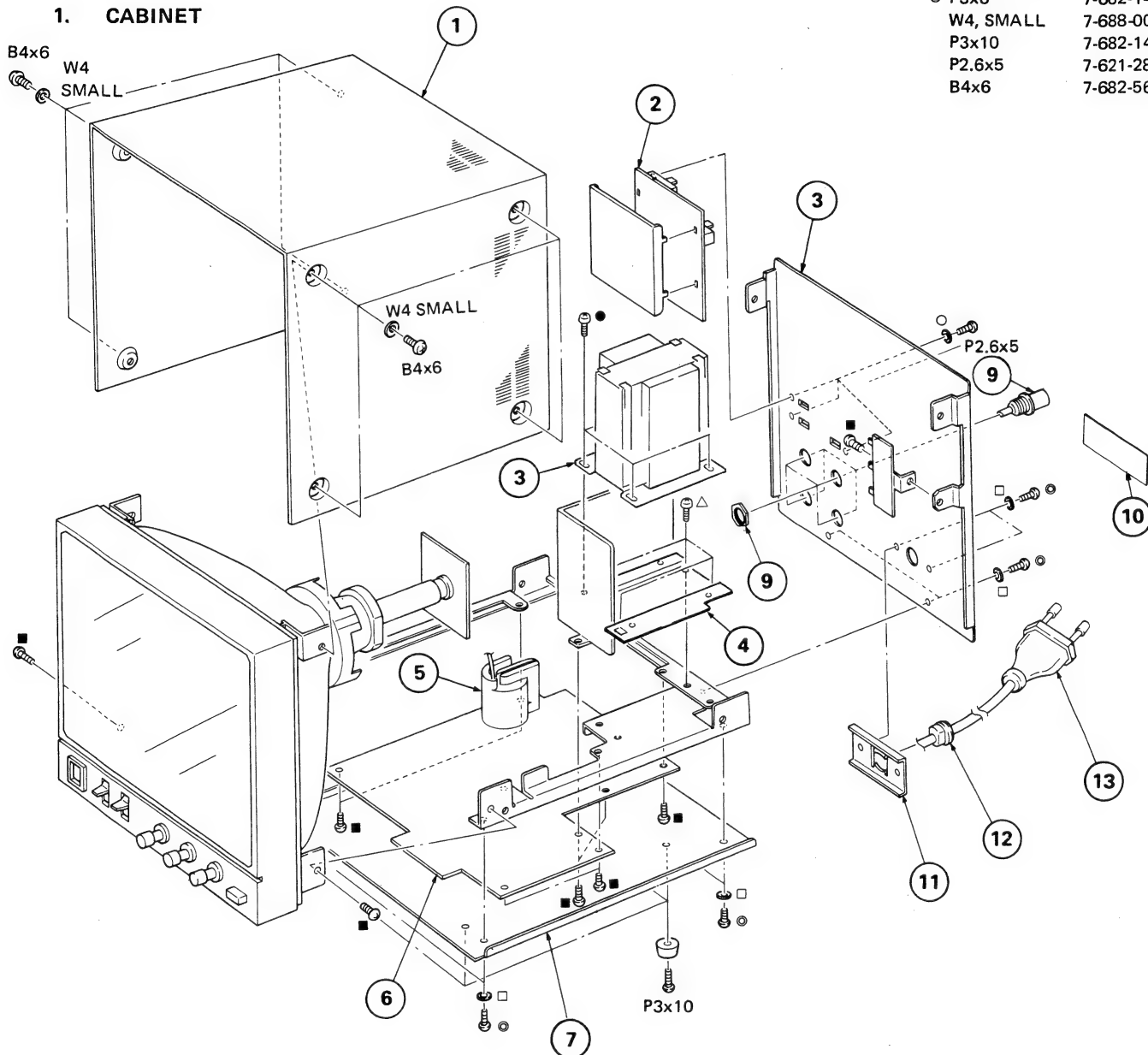
### NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

● BVTP4x10	7-685-660-14
○ W2.6, SMALL	7-688-002-02
△ BVTP4x8	7-685-659-79
■ BVTP3x10	7-685-647-79
□ W3, SMALL	7-688-003-02
● P3x6	7-682-147-09
W4, SMALL	7-688-004-02
P3x10	7-682-149-01
P2.6x5	7-621-284-10
B4x6	7-682-560-09

### 1. CABINET



No. Part No. Description

1	4-027-217-00	CABINET
2	*1-608-456-11	J BOARD
3	△ 1-449-357-11	TRANSFORMER, POWER
4	4-027-226-01	BRACKET, TRANSFORMER
5	1-439-298-00	TRANSFORMER ASSY, FLYBACK
6	*A-1340-485-A	MOUNTED PCB, D
7	*4-027-213-00	PLATE, BOTTOM

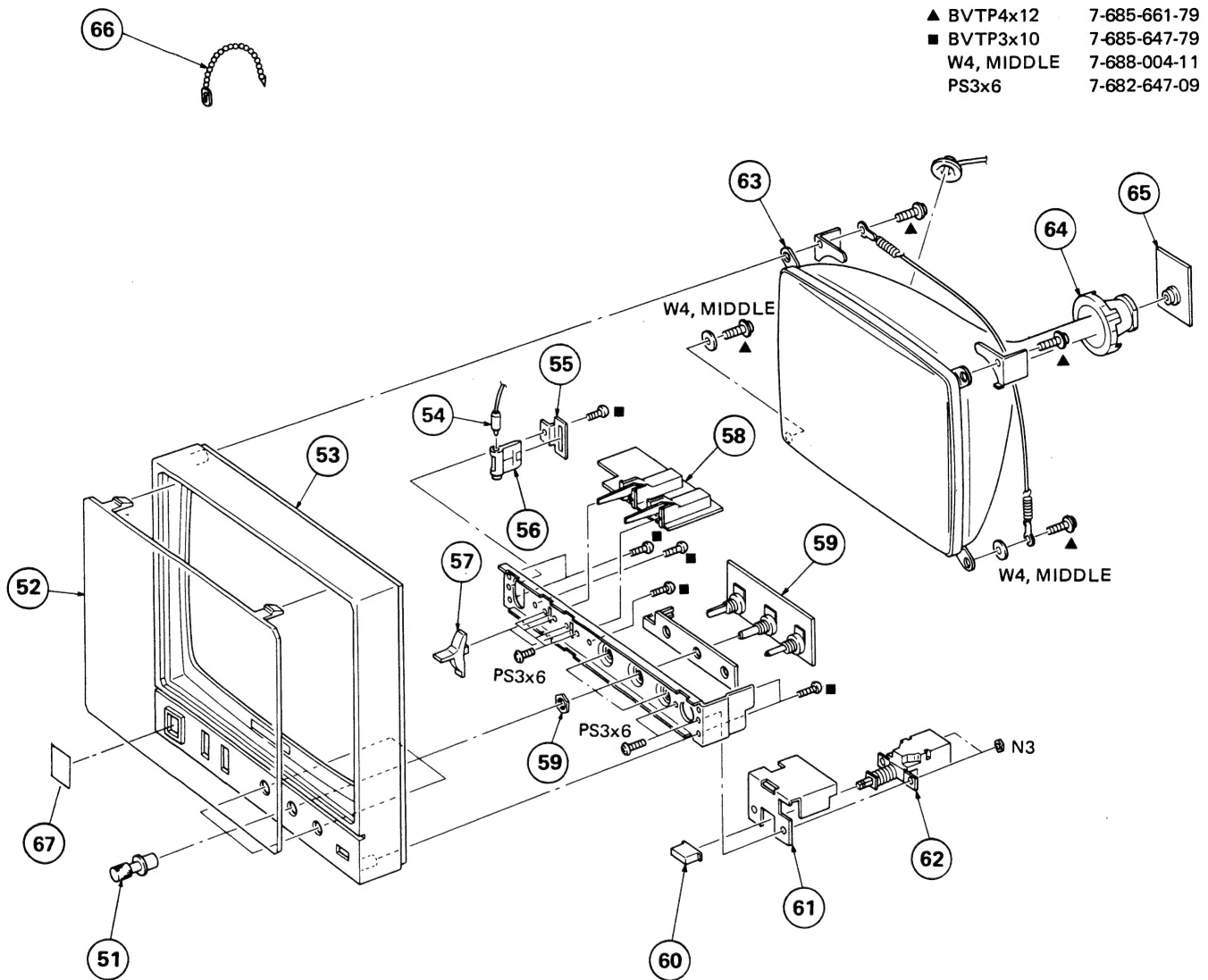
Remark

No. Part No. Description

8	4-027-214-00	PANEL, REAR
9	1-561-167-00	CONNECTOR
10	*4-027-219-00	LABEL, MODEL NUMBER (LARGE)
11	*4-025-821-00	HOLDER, BUSHING (CE)
12	△ 3-005-073-00	STOPPER, CORD
13	△ 1-534-820-XX	POWER CORD

Remark

## 2. BEZEL



No.	Part No.	Description
51	X-4316-209-0	KNOB ASSY, CONTROL
52	4-027-212-00	FILTER
53	X-4027-202-1	BEZEL ASSY
54	▲ 1-519-108-XX	NEON LAMP ASSY
55	*4-308-211-00	HOLDER, NEON LAMP
56	*4-027-202-00	HOLDER, LAMP
57	4-335-954-02	KNOB (2P), LEVER SWITCH
58	*1-608-457-11	Z BOARD
59	*1-608-455-11	H BOARD

Remark	No.	Part No.	Description	Remark
	60	4-335-962-00	PUSH BUTTON	
	61	*4-027-218-00	BARRIER	
	62	▲ 1-553-330-21	SWITCH, PUSH (POWER)	
	63	▲ 1-546-048-11	CATHODE-RAY TUBE (B/W) E2733B4	
	64	▲ 1-451-216-21	DEFLECTION YOKE	
	65	*1-608-454-11	C BOARD	
	66	4-308-870-00	CLIP, LEAD WIRE	
	67	4-340-203-00	PLATE, NUMBER	

PVM-91CE

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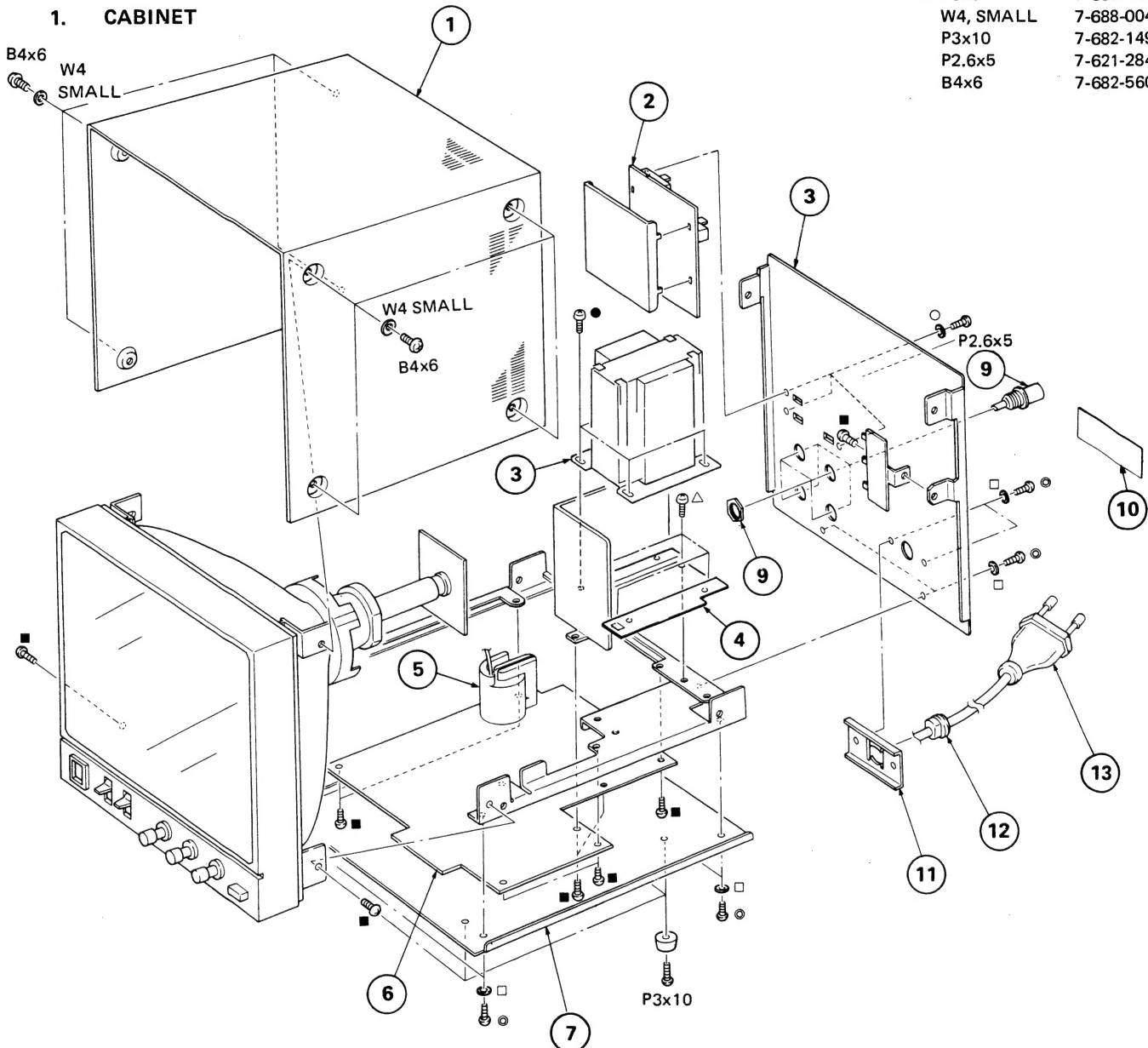
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- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

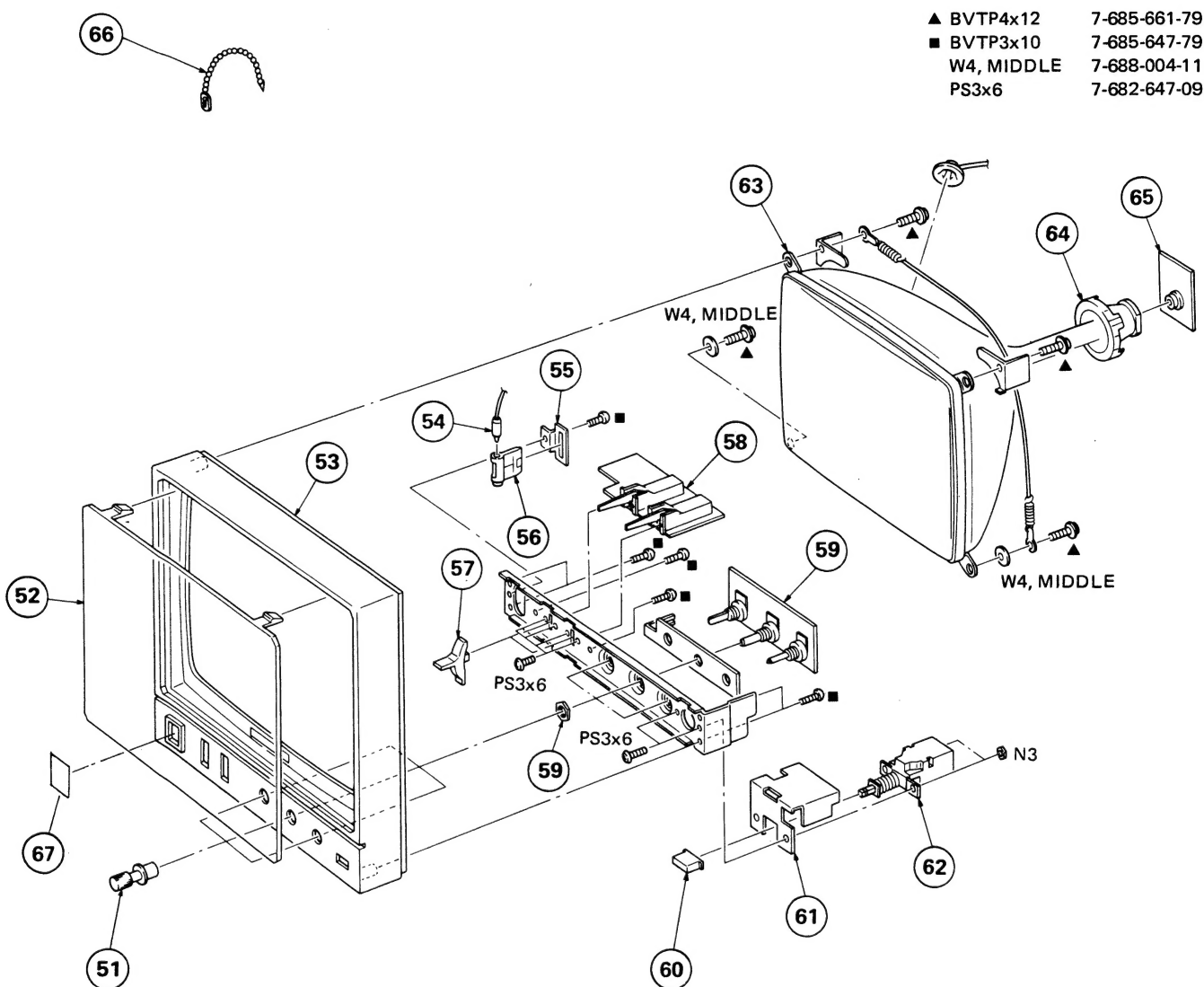
● BVTP4x10	7-685-660-14
○ W2.6, SMALL	7-688-002-02
△ BVTP4x8	7-685-659-79
■ BVTP3x10	7-685-647-79
□ W3, SMALL	7-688-003-02
● P3x6	7-682-147-09
W4, SMALL	7-688-004-02
P3x10	7-682-149-01
P2.6x5	7-621-284-10
B4x6	7-682-560-09

### 1. CABINET



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	4-027-217-00	CABINET		8	4-027-214-00	PANEL, REAR	
2	*1-608-456-11	J BOARD		9	1-561-167-00	CONNECTOR	
3	△ 1-449-357-11	TRANSFORMER, POWER		10	*4-027-219-00	LABEL, MODEL NUMBER (LARGE)	
4	4-027-226-01	BRACKET, TRANSFORMER		11	*4-025-821-00	HOLDER, BUSHING (CE)	
5	1-439-298-00	TRANSFORMER ASSY, FLYBACK		12	△ 3-005-073-00	STOPPER, CORD	
6	*A-1340-485-A	MOUNTED PCB, D		13	△ 1-534-820-XX	POWER CORD	
7	*4-027-213-00	PLATE, BOTTOM					

## 2. BEZEL



▲ BVTP4x12 7-685-661-79  
 ■ BVTP3x10 7-685-647-79  
 W4, MIDDLE 7-688-004-11  
 PS3x6 7-682-647-09

No.	Part No.	Description
51	X-4316-209-0	KNOB ASSY, CONTROL
52	4-027-212-00	FILTER
53	X-4027-202-1	BEZEL ASSY
54	▲ 1-519-108-XX	NEON LAMP ASSY
55	*4-308-211-00	HOLDER, NEON LAMP
56	*4-027-202-00	HOLDER, LAMP
57	4-335-954-02	KNOB (2P), LEVER SWITCH
58	*1-608-457-11	Z BOARD
59	*1-608-455-11	H BOARD

Remark	No.	Part No.	Description	Remark
	60	4-335-962-00	PUSH BUTTON	
	61	*4-027-218-00	BARRIER	
	62	▲ 1-553-330-21	SWITCH, PUSH (POWER)	
	63	▲ 1-546-048-11	CATHODE-RAY TUBE (B/W) E2733B4	
	64	▲ 1-451-216-21	DEFLECTION YOKE	
	65	*1-608-454-11	C BOARD	
	66	4-308-870-00	CLIP, LEAD WIRE	
	67	4-340-203-00	PLATE, NUMBER	